Patent Claims:

1. A device for regenerating an electroless metal plating bath, comprising electrodialysis arrangements (**E1, E2**), each having diluate compartments (**Di1y, Di2y**) for holding the metal plating bath, concentrate compartments (**Ko1y, Ko2y**) that are separated from the diluate compartments (**Di1y, Di2y**) through ion exchange membranes and are intented to hold a concentrate fluid serving to adsorb interfering substances that are to be removed from the metal plating bath as well as anodes (**An**) and cathodes (**Ka**),

wherein main cation exchangers (I_X) for removing metal ions from the concentrate fluid are provided, said cation exchangers being coupled to the concentrate compartments (**Ko1y, Ko2y**) in such a manner that the concentrate fluid is allowed to be conducted through the main cation exchangers (I_X) and to be recirculated back into the concentrate compartments (**Ko1y, Ko2y**).

2. The device according to claim 1, **wherein** said device is comprised of

a) a first electrodialysis arrangement (**E1**) having alternating concentrate compartments (**Ko1y**) and diluate compartments (**Di1y**) as well as cathodes (**Ka**) and anodes (**An**), the diluate compartments (**Di1y**) being each separated on the cathode side thereof from a neighbouring concentrate compartment (**Ko1y**) by a monoselective cation exchange membrane (**KS**) and on the anode side thereof from a neighbouring concentrate compartment (**Ko1y**) by an anion exchange membrane (**A**),

b) a second electrodialysis arrangement (**E2**) having alternating diluate compartments (**Di2y**) and concentrate compartments (**Ko2y**) as well as cathodes (**Ka**) and anodes (**An**), the concentrate compartments (**Ko2y**) being each separated on the cathode side thereof from a

neighbouring diluate compartment (**Di2y**) by an anion exchange membrane (**A**) and on the anode side thereof from a neighbouring diluate compartment (**Di2y**) by a monoselective anion exchange membrane (**AS**),

so that the metal plating bath can be conducted simultaneously through all of the diluate compartments (**Di1y, Di2y**) in the two electrodialysis arrangements (**E1, E2**) that are connected in parallel and the concentrate fluid through all of the concentrate compartments (**Ko1y, Ko2y**) in the two electrodialysis arrangements (**E1, E2**) that are connected in parallel, and

c) current supplies for the cathodes (**Ka**) and the anodes (**An**) of the first electrodialysis arrangement (**E1**) and of the second electrodialysis arrangement (**E2**).

3. The device according to any one of the preceding claims, **wherein** collecting tanks (V_K) are provided, said collecting tanks being coupled to the concentrate compartments (**Ko1y, Ko2y**) and to the main cation exchangers (I_X) in such a manner that the concentrate fluid is allowed to circulate in a first circuit between the concentrate compartments (**Ko1y, Ko2y**) and the collecting tanks (V_K) and in a second circuit between the collecting tanks (V_K) and the main cation exchangers (I_X).

4. The device according to any one of the preceding claims, **wherein** first regenerant fluid vessels (V_{RS1}) for holding regenerant fluid intended for the regeneration of the main cation exchangers (I_X) are further provided, said vessels being coupled to the main cation exchangers (I_X).

5. The device according to any one of the preceding claims, **wherein** service reservoirs (V_{ZK}) for holding concentrate fluid are further provided, said reservoirs being coupled to the collecting tanks (V_K) and to the main cation exchangers (I_X).

6. The device according to any one of the preceding claims, **wherein** safety cation exchangers (I_S) are further provided, said exchangers being coupled to the main cation exchangers (I_X) for post-treatment of the concentrate fluid treated in the main cation exchangers (I_X).

7. The device according to any one of the preceding claims, **wherein** second regenerant fluid vessels (V_{RS2}) for holding regenerant fluid intended for the regeneration of the safety cation exchangers (I_S) are provided.

8. A method for regenerating an electroless metal plating bath, comprising conducting the metal plating bath through the respective diluate compartments (**Di1y, Di2y**) of electrodialysis arrangements (**E1, E2**) and conducting a concentrate fluid serving to adsorb interfering substances that are to be removed from the metal plating bath through respective concentrate compartments (**Ko1y, Ko2y**) of the electrodialysis arrangements (**E1, E2**), said concentrate compartments being separated from the diluate compartments (**Di1y, Di2y**) by ion exchange membranes,

wherein the concentrate fluid is moreover passed through main cation exchangers (I_X) and is recirculated back into the concentrate compartments (**Ko1y, Ko2y**).

9. The method according to claim 8, **wherein** the metal plating bath

a) is conducted through diluate compartments (**Di1y**) in a first electrodialysis arrangement (**E1**) comprising alternating concentrate compartments (**Ko1y**) and the diluate compartments (**Di1y**) as well as cathodes (**Ka**) and anodes (**An**), the diluate compartments (**Di1y**) being each separated on the cathode side thereof from a neighbouring concentrate compartment (**Ko1y**) by a monoselective cation exchange

membrane (**KS**) and on the anode side thereof from a neighbouring concentrate compartment (**Ko1y**) by an anion exchange membrane (**A**), and

b) through diluate compartments (**Di2y**) in a second electrodialysis arrangement (**E2**) comprising alternating the diluate compartments (**Di2y**) and concentrate compartments (**Ko2y**) as well as cathodes (**Ka**) and anodes (**An**), the concentrate compartments (**Ko2y**) being each separated on the cathode side thereof from a neighbouring diluate compartment (**Di2y**) by an anion exchange membrane (**A**) and on the anode side thereof from a neighbouring diluate compartment (**Di2y**) by a monoselective anion exchange membrane (**AS**), and

wherein the metal plating bath is simultaneously conducted through all of the diluate compartments (**Di1y, Di2y**) in the two electrodialysis arrangements (**E1, E2**) that are connected in parallel and the concentrate fluid through all of the concentrate compartments (**Ko1y, Ko2y**) in the two electrodialysis arrangements (**E1, E2**) that are connected in parallel.

10. The method according to any one of claims 8 or 9, **wherein** the concentrate fluid is conducted through collecting tanks (V_K) from where it is passed through the main cation exchangers (I_X).

11. The method according to any one of claims 8 - 10, **wherein,** for regenerating the main cation exchangers (I_X), concentrate fluid contained in the main cation exchangers (I_X) is displaced by a regenerant fluid and is recirculated back into the collecting tanks (V_K), the main cation exchangers (I_X) being regenerated in the process.

12. The method according to claim 11, **wherein** the regenerant fluid is drawn from first regenerant fluid vessels (V_{RS1}) and is transferred to the main cation exchangers (I_X).

13. The method according to any one of claims 11 or 12, **wherein** the regenerant fluid is displaced by the concentrate fluid after regeneration of the main cation exchangers (I_X) is complete, the regenerant fluid being recirculated back into the first regenerant fluid vessels (V_{RS1}).

14. The method according to any one of claims 8 - 13, **wherein** concentrate fluid flows through several main cation exchangers (I_X) at different times with the regenerant fluid being circulated through those main cation exchangers (I_X) through which the concentrate fluid is not circulating for regeneration thereof.